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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,268	10/22/2001	Mark Kevitt Debe	52955US011	5103

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3M INNOVATIVE PROPERTIES COMPANY  
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EXAMINER
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RUTHKOSKY, MARK

ART UNIT	PAPER NUMBER
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1795

NOTIFICATION DATE	DELIVERY MODE
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11/19/2007

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## Office Action Summary

### Application No.

10/014,268

### Applicant(s)

DEBE, MARK KEVITT

### Examiner

Mark Ruthkosky

### Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 1-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 31-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Amendment*

This paper is in response to applicant's submission filed 8/30/2007.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 31-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Pedrick (GB 1,439,440.)

The instant claims are to an apparatus for delivering gas at a controlled rate comprising

- a) an article comprising at least one containment means comprising pressurized gas-filled microbubbles, said gas being releasable on demand,
- b) a means for causing release of said gas from said microbubbles by fracturing, and
- c) a feedback and control means for releasing gas to an electrochemical power device at a controlled rate determined by a load.

Pedrick (GB 1,439,440) teaches an apparatus for delivering gas at a controlled rate comprising an article with at least one containment means comprising pressurized gas-filled microbubbles, said gas being releasable on demand (claims 1-4), a means for causing release of said gas from said microbubbles by fracturing (page 3, col. 1), and a feedback and control means for releasing gas to an electrochemical power device at a controlled rate determined by a load (page 2, col. 1, lines 35-end; col. 2, line 90-end; page 3, lines 1-20.) A fracture release mechanism is taught for releasing the fuel. Engines and vehicles are well known to inherently include a throttle that releases fuel in response to the need required by the engine. Thus, the claims are anticipated.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monsler et al. (Fuel Cells for Transportation TOPTEC, as submitted by applicant in their disclosure of prior art) in view of Ishimaru et al (US 5,432,710) OR Scheffler et al. (US 5,009,967.)

Monsler et al. teaches an apparatus for delivering gas at a controlled rate comprising an article with at least one containment means comprising pressurized gas-filled microbubbles, said gas being releasable on demand, a means for causing release of said gas from said microbubbles by fracturing (pages 4-5.) The reference does not teach a feedback and control means for

releasing gas to an electrochemical power device at a controlled rate determined by a load. Ishimaru et al (US 5,432,710, see figure 1, the abstract and the claims) and Scheffler et al. (US 5,009,967, see claims 1-4) teach feedback and control means for releasing gas to an electrochemical power device at a controlled rate determined by a load. Various detectors and processors are noted. The controllers supply a fuel to a load in an efficient manner. It would have been obvious to one of ordinary skill in the art at the time the invention was made to a feedback and control means for releasing gas to an electrochemical power device at a controlled rate determined by a load in order to supply a fuel to a load in an efficient manner, so as not to undersupply the load or to oversupply the load and waste fuel not used by the load. The artisan would have found the claimed invention to be obvious in light of the teachings of the references.

### *Response to Arguments*

Applicant's arguments filed 8/30/2007 have been fully considered but they are not persuasive.

Arguments based on rejections under 35 U.S.C. 102. Applicant argues that the prior art does not teach an apparatus for delivering gas at a controlled rate comprising, inter alia, "a) an article comprising: at least one containment means comprising pressurized gas-filled microbubbles, said gas being releasable on demand, and e) a feedback and control means for releasing gas to an electrochemical power device at a controlled rate determined by a load." Applicant further states that, "Pedrick teaches a device which apparently consumes one fuel pellet per cycle, no more or less" and "It is apparently not capable of adjustment to consume more fuel per cycle in response to an increasing load. Applicant concludes, "Therefore, Pedrick

fails to teach or suggest a device that release gas "at a controlled rate determined by a load," as recited in the present claims, nor does the Pedrick device release gas "on demand".

This argument is not persuasive. Applicant requires a feedback and control means for releasing gas to an electrochemical power device at a controlled rate determined by a load. As taught in the reference, "The fracture of the fuel pellet thus feeds into the space above the piston, as specific quantity appropriate to the combustion of air compressed by the piston." The engine is taught as a means to propel a submarine, aircraft or automobile (page 1, col. 2, lines 55-end and page 3, col. 1, lines 55-end.) As noted in the rejection, these vehicles use engines that inherently include a throttle that releases fuel in response to the need required by the engine and vehicle. The throttle is a means that is a control means and the vehicle response gives feedback based on the amount of fuel supplied by the throttle.

Arguments based on rejections under 35 U.S.C. 103. Applicant argues that the present claims require an apparatus comprising a means for causing release of said gas from said microbubbles by fracturing. Applicant argues that Monsler teaches "The hydrogen can be released by heating the microspheres" (Monsler at 5). The Background Art section of the present Specification makes note of such methods: "in bulk hydrogen storage in glass microbubbles, the microbubbles are heated to temperatures on the order of 250 °C or higher to cause release of the hydrogen by diffusion through the glass microbubble walls." (Specification at page 2, lines 1-3.) This argument is not persuasive. The claim requires a means for causing the release of gas from the microbubble by fracturing. Heating the microbubble is taught to release the gas from the microbubble by fracturing. The bubbles become porous, and thus fractured, at high temperatures.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Examiner Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or


Application/Control Number:  
10/014,268  
Art Unit: 1795

Page 7

Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

Mark Ruthkosky  
Primary Patent Examiner  
Art Unit 1745

**MARK RUTHKOSKY**  
**PRIMARY EXAMINER**

  
11.9.2007